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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,788	08/09/2001	Neil Brown	A30588US	6201
7590	10/02/2003			EXAMINER
Arnold % Associates Gordon T. Arnold 2401 Fountain View Dr. Suite 630 Houston, TX 77057			KRECK, JOHN J	
			ART UNIT	PAPER NUMBER
			3673	
DATE MAILED: 10/02/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/925,788	BROWN ET AL.
	Examiner John Kreck	Art Unit 3673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 08 July 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-6 and 8-39 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-6 and 8-39 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 09 August 2001 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on 08 July 2003 is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

The amendment dated 7/8/03 has been entered.

Drawings

1. The drawings were received on 7/8/03. These drawings are disapproved. The drawing corrections must be made in accordance with 37 CFR 1.84:

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

Replacement Drawing Sheets

Drawing changes must be made by presenting replacement figures which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments, or remarks, section of the amendment. Any replacement drawing sheet must be identified in the top margin as "Replacement Sheet" and include all of the figures appearing on the immediate prior version of the sheet, even though only one figure may be amended. The figure or figure number of the amended drawing(s) must not be labeled as "amended." If the changes to the drawing figure(s) are not accepted by the examiner, applicant will be notified of any required corrective action in the next Office action. No further drawing submission will be required, unless applicant is notified.

Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin.

Annotated Drawing Sheets

A marked-up copy of any amended drawing figure, including annotations indicating the changes made, may be submitted or required by the examiner. The annotated drawing sheets must be clearly labeled as "Annotated Marked-up Drawings" and accompany the replacement sheets.

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Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.85(a). Failure to take corrective action within the set period will result in ABANDONMENT of the application.

If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings MUST be filed within the THREE MONTH shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability.

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means for making

the well/ means for drilling (claims 23 and 24); means for heating (claim 30) and the means for processing (claim 36) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

2. The drawings are objected to because figures 2a-2c each include both cross section and plan views. Each figure should include only a single view; it is suggested that each view should be renumbered; e.g. figure 2a renumbered as figures 2a-1 and 2a-2.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-6, 8-10, 13, 21, and 23-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Huff (U.S. Patent number 4,425,003).

Huff teaches a method for solution mining a subterranean material including injecting a fluid (col. 2, line 40) into an elbow well (see col. 1, line 63 through col. 2, line 4), the fluid forming a mixture with the subterranean material in a single cavity; and collecting the mixture from the elbow well (col. 2, line 52) as called for in claim 1. Note that the open ended claim language "comprising" does not preclude additional cavities.

Huff also teaches the making the elbow well as called for in claim 3.

Huff also teaches the drilling the elbow well into a bed as called for in claim 4.

Huff also teaches the casing the elbow well as called for in claim 5.

Huff also teaches the injecting into an injection tube (16) as called for in claim 6.

Huff also teaches the making the cavity comprises the mixture as called for in claim 8.

Huff also teaches the mixture comprises a solution as called for in claim 9.

Huff also teaches the water as called for in claim 10.

Huff also teaches the collecting the mixture through a production tube (17) as called for in claim 13.

Regarding independent claim 21:

Huff shows a system for solution mining including means for injection fluid into an elbow well, the fluid forming a mixture with subterranean material in a single cavity and means for collecting the mixture as called for in claim 21.

Huff also teaches the means for making the elbow well as called for in claim 23.

Huff also teaches the means for drilling as called for in claim 24.

Huff also teaches the means for casing (15) as called for in claim 25.

Huff also teaches the injection tube as called for in claim 26.

Huff also teaches the subterranean solution as called for in claim 27.

Huff also teaches the water as called for in claim 28.

4. Claims 1, 3-6,8-10, 13, 21, 23-28, 37, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Durup, et al. (U.S. Patent number 5,988,760).

Durup teaches a method for solution mining a subterranean material including injecting a fluid into an elbow well the fluid forming a mixture with the subterranean material in a single cavity; and collecting the mixture from the elbow well as called for in claim 1.

Durup also teaches the making the elbow well as called for in claim 3.

Durup also teaches the drilling the elbow well into a bed as called for in claim 4.

Durup also teaches the casing (14) the elbow well as called for in claim 5.

Durup also teaches the injecting into a tube (22) as called for in claim 6.

Durup also teaches the making the cavity comprises the mixture as called for in claim 8.

Durup also teaches the mixture comprises a solution as called for in claim 9.

Durup also teaches the water as called for in claim 10.

Durup also teaches the collecting the mixture through a production tube (see col. 5, lines 51-57) as called for in claim 13.

Regarding independent claim 21:

Durup shows a system for solution mining including means for injection fluid into an elbow well, the fluid forming a mixture with subterranean material in a single cavity and means for collecting the mixture as called for in claim 21.

Durup also teaches the means for making the elbow well as called for in claim 23.

Durup also teaches the means for drilling as called for in claim 24.

Durup also teaches the means for casing (14) as called for in claim 25.

Durup also teaches the injection tube as called for in claim 26.

Durup also teaches the subterranean solution as called for in claim 27.

Durup also teaches the water as called for in claim 28.

Regarding independent claim 37:

Durup shows an apparatus for solution mining including an injection tube (22) which has an inner diameter of sufficient size to allow for injection of fluid; and a production casing (14) which has an inner diameter sufficient to allow for production of a mixture between the outer surface of the injection tube and the inner surface of the casing as called for in claim 37.

Durup also shows a production tube (see col. 5, lines 51-57) as called for in claim 38.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 19 and 35 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Huff.

Huff fails to disclose any operating pressure; and thus fails to explicitly teach the ambient pressure. Since Huff fails to disclose any specific pressure and fails to teach any pressurizing, then it is assumed that Huff anticipates "ambient" pressure as called for in claims 19 and 35; alternatively, if it is deemed that Huff does not anticipate the ambient pressure, then it would have been obvious to one of ordinary skill in the art at the time of the invention to have operated the Huff method at ambient pressure as

called for in claims 19 and 35, in order to eliminate any need for high pressure equipment.

6. Claims 2, 11, 20, 22, 29, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huff in view of Kube (U.S. Patent number 3,953,073).

Huff teaches all of the limitations of claims 1 and 21, from which these claims depend. Huff fails to teach the trona as called for in claims 2 and 22; the caustic as called for in claims 11 and 29; or the step of processing/means for processing as called for in claims 20 and 36. Huff teaches that the method can be used with "any other soluble mineral" (col. 1, line 51).

Kube teaches that trona is a soluble mineral, and is desirably mined to recover valuable products, such as sodium carbonate; and that a caustic solution is advantageous for solution mining trona (col. 2, lines 41-58) because it improves the solubility of the carbonate/bicarbonate system. Kube further teaches that processing is desirable subsequent to mining (col. 3, line 20) to extract sodium carbonate.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the Huff method to solution mine trona; thus having the subterranean material comprising trona as called for in claims 2 and 22; in order to obtain the valuable product of sodium carbonate.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the Huff method to solution mine trona, and to have further modified the Huff method/apparatus to also include the fluid comprising a caustic

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mixture as called for in claims 11 and 29, and as taught by Kube, in order to improve the solubility.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the Huff method to solution mine trona, and to have further modified the Huff method/apparatus to also include the step of processing/means for processing as called for in claims 20 and 36, and as taught by Kube, in order to extract the valuable sodium carbonate from the solution.

7. Claims 12 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huff in view of Brinton (U.S. Patent number 2,822,158).

Huff teaches all of the limitations of claims 1 and 21, from which these claims depend. Huff fails to teach the heating of fluid or the means for heating.

Brinton teaches that it is sometimes desirable to heat fluid for solution mining, based on the material to be mined (col. 14, lines 72-73).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Huff method/apparatus to have included the step/means of heating the fluid as called for in claims 12 and 30; based on the material to be mined

8. Claims 14-18 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huff in view of Larson, et al. (U.S. Patent number 4,222,611).

Huff teaches all of the limitations of claims 1 and 21, from which these claims depend. Huff fails to explicitly teach the pumping/means for pumping as called for in

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claims 14 and 31; the pump lifting through the tube as called for in claim 15; the pump in the elbow well as called for in claim 18; and the means for placing the pump as called for in claim 32.

It is notoriously conventional in the art of solution mining to use pumps to pump fluid to the surface; this is shown by Larson (col. 2, lines 2-6). Larson shows a pump within a well, and thus inherently teaches the means for placing a pump in a well; pumps are often placed within wells because pumps operate more efficiently with short suction lengths.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Huff method to have included pumping the mixture as called for in claim 14 or to have the means for pumping as called for in claim 31, in order to help deliver the mixture to the surface.

With regards to claim 15, Larson teaches that the pump lifts the fluid through the production tube; thus it would have been further obvious to one of ordinary skill in the art at the time of the invention to have modified the Huff method to have a pump lift fluid through the production tube as called for in claim 15, in order to help deliver the mixture to the surface.

With regards to claims 16 and 17; Huff teaches the delivering to a collection location at the surface.

With regards to claim 18, Larson teaches that the pump is located in the well, thus it would have been further obvious to one of ordinary skill in the art at the time of

the invention to have modified the Huff method to have placed a pump in the elbow well as called for in claim 18, in order to help deliver the mixture to the surface.

With regards to claim 32, Larson teaches that the pump is located in the well, thus it would have been further obvious to one of ordinary skill in the art at the time of the invention to have modified the Huff method to have included means for placing a pump in the elbow well as called for in claim 32, in order to help deliver the mixture to the surface.

With regards to claims 33 and 34; Huff teaches the delivering to a collection location at the surface.

9. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Durup in view of Larson.

Durup teaches all of the limitations of claims 38, from which this claim depends. Durup fails to explicitly teach the pump as called for in claim 39.

It is notoriously conventional in the art of solution mining to use pumps to pump fluid to the surface; this is shown by Larson (col. 2, lines 2-6).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Durup system to have included a pump connected to the production tube, in order to help deliver the mixture to the surface.

Response to Arguments

It is noted that applicant has made no substantive arguments regarding the 102 rejection of claims 37 and 38.

10. Applicant's arguments filed 7/8/03 have been fully considered but they are not persuasive.

11. With regards to the drawings; applicant is reminded of the proper procedures for correcting the drawings (above). Applicant is further reminded that claimed subject matter must be shown, or cancelled from the claims. Applicant is further reminded that each view of the drawings must have its own number.

See 37 CFR 1.83 (a):

(a) *The drawing in a nonprovisional application must show every feature of the invention specified in the claims. However, conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation (e.g., a labeled rectangular box).*

See also 37 CFR 1.84(u):

(u) *Numbering of views.*

(1) *The different views must be numbered in consecutive Arabic numerals, starting with 1, independent of the numbering of the sheets and, if possible, in the order in which they appear on the drawing sheet(s). Partial views intended to form one complete view, on one or several sheets, must be identified by the same number followed by a capital letter. View numbers must be preceded by the abbreviation "FIG." Where only a single view is used in an application to illustrate the claimed invention, it must not be numbered and the abbreviation "FIG." must not appear.*

12. Applicant's primary argument regarding the claims is that the amended claims define over the cited references because they call for a single cavity. See MPEP 2111.03:

The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.); Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986); In re Baxter, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); Ex parte Davis, 80 USPQ 448, 450 (Bd. App. 1948) ("comprising" leaves "the claim open for the inclusion of unspecified ingredients even in major amounts").

Since the claim language "comprising" is open ended, it does not preclude multiple cavities as asserted by applicant.

13. With regards to claims 2,11, 20, 22, 29, and 36; the suggestion to combine is explicitly recited in paragraph 9 of the office action.

14. With regards to claims 12 and 30; the suggestion to combine is explicitly recited in paragraph 10 of the office action. Applicant's assertion that Brinton's stated use of heated water is only for other purposes (i.e. not for removing material from a well) flies in the face of reason. The entire disclosure of Brinton is directed to removing material from a well.

12. With regards to claims 14-18; the suggestion to combine is explicitly recited in paragraph 11 of the office action. In response to applicant's argument that Larson is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for

rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the Larson reference is directed to pumping fluid from a well, which is more than reasonably pertinent.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kreck whose telephone number is (703)308-2725. The examiner can normally be reached on M-F 5:30 am - 2:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on (703)308-2978. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-4177.

JJK



HEATHER SHACKELFORD
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